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a gate insulation film with a first relative permittivity formed at least on said channel directly or through a buffer insulation film;

a gate electrode formed on said gate insulation film; and

a side insulation film formed at least on a side of said gate insulation film and having a second relative permittivity which is smaller than the first relative permittivity, wherein

when a first area of said gate insulation film adjacent to said gate electrode is S1, a second area of said gate insulating film adjacent to said channel is S2, and a third area of a bottom part of said gate electrode is S3,

the area S1 is larger than the area S2, the area S3 is larger than the area S1, a part of the third area S3 is connected to said gate insulating film, and the other part of the third area S3 is not connected to said gate insulating film.

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9. (Twice Amended) A semiconductor device comprising:

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a channel of a first conductivity type formed on a surface layer of a semiconductor substrate;

a source and a drain of a second conductivity type formed on both sides of the channel;

a gate insulation film with a first relative permittivity formed at least on said channel directly or through a buffer insulation film;

a gate electrode formed on said gate insulation film; and

a side insulation film formed at least on a side of said gate insulation film and having a second relative permittivity which is smaller than the first relative permittivity,

wherein an electric flux density in said gate insulation film on a side towards the channel side is more dense than an electric flux density in said gate insulation film on a side

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towards the gate electrode, and an area of a bottom part of said gate electrode is larger than an area of an upper part of said gate insulation film.

10. (Twice Amended) A semiconductor device comprising:

a plurality of first MOS transistors, each of said first MOS transistors including,

a first channel of a first conductivity type formed on a surface layer of a semiconductor substrate,

a first source and a first drain of a second conductivity type formed to both sides of said first channel,

a first gate insulation film with a first relative permittivity formed at least on the first channel directly or through a buffer insulation film,

a first gate electrode formed on said first gate insulation film, and

a first side insulation film formed at least on side of said first gate insulation film and having a second relative permittivity which is smaller than the first relative permittivity; and

a plurality of second MOS transistors, each of said second MOS transistors including,

a second channel of the first conductivity type formed on a surface layer of said substrate,

a second source and a second drain of the second conductivity type formed on both sides of said second channel,

a second gate insulation film with the first relative permittivity formed at least on said second channel directly or through a buffer insulation film,

a second gate electrode formed on said second gate insulation film, and

a second side insulation film formed at least on side of said second gate insulation film and having said second relative permittivity,